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LAKE CARRIERS' ASSOCIATION.

To consider and take action upon all general questions relating to the navigation and carrying business of the Great Lakes, maintain necessary shipping offices and in general to protect the common interest of Lake Carriers, and improve the character of the service rendered to the public.

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WAGES FOR THE SPRING OF 1895.

A well attended meeting of the finance committee of the Lake Carriers' Association was held in the offices of ex-president James Corrigan, in Cleveland, Tuesday morning at 11 o'clock, with vice-president J. C. Gilchrist in the chair. Secretary Charles H. Keep and Capt. J. H. H. Brown, of Buffalo, and L. S. Sullivan, of Toledo, were present. President Wm. Livingstone, of Detroit, was prevented by illness from attending.

After some discussion, it was decided to place in effect the following schedule of wages, which is precisely the same as the scale enacted March 13, 1894, which went into effect at the opening of navigation last year, and which ruled until October 15, when an advance was paid:

ON STEAMERS.

FIRST CLASS.—Metal steamers having water bottoms and triple expansion engines:

	PER MONTH.
Chief engineer	$100 00
Second "	70 00

SECOND CLASS.—Metal steamers not included in Class 1, and wooden vessels with triple expansion and with compound engines, except the smaller boats which may be put in Class 3:

Chief engineer	$75 00 to 90 00
Second "	60 00

THIRD CLASS.—Smaller boats with high pressure or low pressure engines, or with compound engines, covering all boats not included in the two former classes:

Chief engineer	$60 00 to 75 00
Second "	50 00
First mates	50 00 to 70 00
Second mates (when carried)	35 00 " 50 00
Cooks	35 00 " 50 00
Helpers to cooks	10 00 " 15 00
Firemen	25 00 " 30 00
Wheelsmen	25 00 " 30 00
Lookouts	20 00 " 30 00
Deck hands	12 00 " 15 00
Oilers (when carried	25 00 " 30 00

Firemen—fitting out and laying up, $1 00 per day and board themselves.

Right hand column only on large steamers having special facilities for handling cargo.

ON CONSORTS AND SAIL.

First mates	$30 00 to 45 00
Second mates (when carried)	25 00 " 30 00
Cooks	25 00 " 30 00
Seamen	25 00 " 30 50
Boys	12 00 " 15 00

Chief shipping master A. R. Rumsey, who has just returned from his trip around the world, was re-elected for this season. The shipping masters of last season at other ports were also chosen again.

The Association also ratified the following agreement reached through a special committee for unloading lumber, for the season of 1895, between the Lake Carriers' Association and Jacob Powitzki and Charles Kehn:

White and Norway pine boards—strips and planks	23c per 1,000
Bill stuff 2 x 4 to 2 x 14—20 ft. and longer—in hold or on deck	25c " 1,000
Timber 3 x 4 to 10 x 10 and Norway plank 3 x 4	27c " 1,000
Timber larger than 10 x 10	34c " 1,000
Lath and shingles on deck or in hold	5c " 1,000
Basswood lumber	26c " 1,000
Hardwood lumber on deck or in hold	38c " 1,000
Fence posts 4 in. and over	65c " 100
Grape posts	40c " 100
Cedar Ties	1¼c each.
Tamarack Ties	1½c each.
Shorts, full cargos, 8 ft. and under	29c per 1,000
Back piling	10c " 1,000

No extra charges for shorts where the quantity does not exceed one-half of the full cargo, and no extra charges for steam barges or extra depth of hold over 12 feet.

A committee consisting of Capt. George P. McKay, H. A. Hawgood, B. L. Pennington, W. S. Mack and J. W. Moore was appointed to secure, if possible, an equalization of ore trimming rates. The charge at Two Harbors and Escanaba is 3 cents per ton, and 2½ cents elsewhere. An effort will be made to have the rate placed uniformly at 2½ cents.

SQUADRON DRILLS AT SEA.

The smooth clean hulls of the new cruisers, their glistening steel weapons, their speed and power, the evidences of strength both offensive and defensive, which they display, their numerous mechanical and scientific appliances, all mark them as fully abreast of the development of this age of steel, and as worthy to maintain the honor of the flag under its new and altered conditions. Once more the navy of the United States seems equal to any demands that might be made upon it, to be a sure reliance in time of national emergency, a defence in the event of national peril.

These ships weigh several thousand tons each. They would be moving at a speed of fifteen knots or more. Their formation must be compact and regular, for at such a speed a mere touch of one to another might be a disabling blow, and if the squadron is scattered by ships' losing distance an alert enemy may find his opportunity. Then the admiral's signals must be looked to. If the vessels change direction, they should change as one. If the admiral desires to change his formation or his front, it must be done without confusion. A captain of a ship in a fleet action has therefore a double duty—first, to employ his own weapons to the best advantage and to endeavor to avoid those of the enemy; second, to manœuvre his ship with her consorts, obeying and supporting his admiral: and the latter he must do amidst the terrible din, confusion, and destruction of the former. Quick manœuvring must therefore become to him a second nature—something to be done almost unconsciously as a matter of habit, and this habit can be acquired only by long and constant practice. The highest school of naval war in time of peace, that work which solves its problems, and is the best guarantee of future success, is manœuvring vessels in company with others—in professional language, fleet or squadron tactics.

Proficiency in this art has always accompanied naval supremacy. It was so in the galley period, and, much later, during that long period when vessels were propelled by sails alone. The victories of St. Vincent and Nelson were the joint product of their genius and of fleets of unusual mobility and tactical training. With modern vessels of great speed and power, independent of the wind, and armed with weapons of variety and precision, this kind of training and drill is still more valuable—is in fact, essential. Naval writers of all countries dwell upon its importance, and continually urge that increasing attention be given to it during those times of peace which afford the only real opportunity of preparing for the sharp and decisive wars of modern times.—*Harper's Weekly.*

PLANS FOR LIGHT STATIONS.

Capt. John Miles, engineer secretary of the light-house board, who recently made a trip to Cleveland and the cities bordering on the Great Lakes, says that plans for several of the light stations on the lakes, provided for in the last sundry civil bill, have already been received from the district engineers at the office of the light-house board and are now under consideration, and that others are expected at an early date.

NEWS AROUND THE LAKES.

CHICAGO, ILL.

Special Correspondence to The Marine Record.

Capt. John Gee, of the Racine, has resigned.

Capt. William Bonnah, of Port Huron, is fitting out the schooner H. H. Badger.

Last Saturday morning the steamer C. B. Lockwood was discovered to be leaking and indications are that her cargo is partly damaged.

The Goodrich fleet opened its season of navigation Wednesday, and C. B. Hamilton, who served as purser on the Muskegon last season, fills the same position on the Virginia this year.

Jesse Spalding, president of the Sturgeon Bay Canal Company has decided to appeal to the Illinois Supreme Court the suit recently decided in favor of Leathem & Smith on the question of harbor tolls in the Cook County Circuit Court. He states that the step was taken upon the advice of a dozen able admiralty lawyers.

Vice President and Freight Traffic Manager Oscar Murray, E. O. McCormick, passenger traffic manager, and J. G. Van Winkle, general superintendent of the Big Four system, are about to visit Benton Harbor, whose citizens are trying to persuade the company to extend its road to that town, and to place the lake terminals there instead of at St. Joseph.

CLEVELAND, O.

Special Correspondence to The Marine Record.

The river customs office will be open for business Monday morning.

The big tug Cascade, the largest C. L. & W. R. R. towing craft in Buffalo harbor, has been sold to Lorain people for $17,000.

The Ohio & Pennsylvania Transportation Co. has incorporated in Ohio for the purpose of shipping iron and coal on the lakes. The company will enter the field without delay, though on a small scale at first. Several Cleveland men are interested in it. It has not yet been decided whether to build or buy boats.

The Cleveland Tug Co. closed a deal on Saturday with Capt. C. E. Benham for the big tug C. E. Benham. She will be fitted out at once and placed in the line for outside towing, wrecking and other heavy work. Manager Elsey is also negotiating for two other heavy tugs in order to accommodate the volume of business now in sight.

The freight situation this week shows no especial development. Col. W. P. Rend, and L. W. Doty, of Chicago, G. G. Hadley, of Toledo and other coal men have spent several days in the city and it is thought they are at work on important sales. The coal men are hardly ready as yet to arrange for tonnage and the ore men have stopped until more sales are made.

The Cleveland Yacht Club expect to be in their new club house on the lake front early in July.

The six steel canal barges, to be built by the Globe Iron Works of Cleveland, for the Cleveland Steel Canal Boat Co. will cost $50,000. They will be specially adapted for the handling of steel rails, of which the Johnson Steel Co. of Lorain, promises to supply a large amount for shipment. The backers of the enterprise expect to draw trade from territory west and southwest of Cleveland through the Big Four road, in other words, secure the freight that is now taken to Toledo, is to be then transmitted by lake to Buffalo, and thence moved eastward by lake and canal to New York.

MILWAUKEE, WIS.

Special Correspondence to The Marine Record.

The steam barge Rand will be given a new deck and boiler here.

The tug J. J. Haggerman was in the boxes this week for slight repairs.

The schooner Walhalla has been placed on the boxes at the south yard for calking.

The local shipmasters' lodge held their last meeting for the season on Tuesday evening.

The masts of the steamer R. P. Flower have been removed and pole spars substituted.

The steamers R. P. Flower and Frank L. Vance will not go into commission until the 1st of May.

The steamer Lawrence will take the place of the Petoskey on the route between Milwaukee and St. Joseph next week.

At the south yard the barge Harold occupies the stationary drydock for calking and such repairs as may be found necessary.

Milwaukee millers recently bought 200,000 bushels of wheat at Duluth, which will be brought down at the opening of navigation from Lake Superior.

Leathem & Smith, of Sturgeon Bay, have cut down the Fountain City into a lumber carrier. Her capacity is about 600,000 feet. Capt. Charles Graves will command her.

The National Association of Longshoremen will meet in annual convention at Milwaukee next July with a large number of delegates in attendance. The association is rapidly assuming formidable proportions.

The W. L. Wetmore now occupies the stationary dry dock at the West yard. She is to receive part new bottom planking, and will also be refastened and recalked. Similar work is to be done on the Brunette at the south yard, as soon as the stationary dock can be secured.

The Florence-Iron River Mining Co. has passed into the hands of a receiver, Supt. S. T. Beattey being appointed. An execution for $5,064.66 in favor of Joseph Hyman, of Chicago, was returned unsatisfied. Later the receiver was applied for and appointed. The Florence-Iron River Co. is a combination of the Florence and Iron River mines. The Iron River was owned by Youngstown, O., people, and the fee of the Florence by H. D. Fisher, of Florence, and Vandykes, of this city. The two mines were purchased by Ferdinand Schlesinger, and for a time were heavy shippers of ore. When Mr. Schlesinger's affairs first became entangled, the consolidated mine was turned over to the New York banking firm of Ladenburg, Thalman & Co. The mines at one time were the biggest producers in the Menominee range.

BUFFALO, N. Y.

Special Correspondence to The Marine Record.

Barge 118 has unloaded at the Dakota, and the steamer Schuck at the Dispatch elevator.

Capt. Andrew Kelley, last year mate of the Wyoming, goes this year as master of the Florida.

The steambarge St. Louis was towed up from Tonawanda Tuesday, and will go into dry-dock for repairs,

Coxe Bro.'s coal trestle has been thoroughly repaired and is ready for business. The Brown hoist is not to be put up on it again.

The Merchants' Exchange is agitating the subject of a police boat, to cost $5,000, to prevent the wholesale depradations of thieves on the water front.

Buffalo's ore trade is rapidly dwindling. Only three docks have any left, and some of that is two years old. There is about 50,000 tons here. The New York Central ore dock is to go for a flour warehouse.

The canal forwarders are preparing to repeat the partial combination of last season and have already organized. The time has arrived for making opening canal rates, but so far no grain has been offered for canal shipment.

Hand & Johnson's tug Crusade, one of the most powerful on the lakes, has been sold to the Cleveland, Lorain & Wheeling Railway Co., for harbor work at Lorain. The price is said to be $17,000. She is being overhauled in dry-dock before being sent up the lake.

Howard H. Baker & Co., the well-known ship chandlers, have issued this week a sheet of sailing distances between the principal lake ports, neat cards showing the new signals in use by the Weather Bureau, and revised up to March are also being mailed to vesselmen generally. Much credit is due Howard H Baker & Co. for furnishing such excellent matter in first-class shape.

John C. Fitzpatrick, part owner of the Hope and Fitzpatrick, has been elected general manager of the Crystal Beach Excursion Boat Co. and will begin to put the line on a paying basis at once. The line carried excursions between this port and a summer resort on the Canadian shore last season. During the winter the steamers were seized on bills for fuel by the United States marshal, but were subsequently released on payment of the claims.

The lake line managers are back from New York with the combination all signed and settled. The eight through lines all agree to the allotment of freight to be carried. A weekly report is to be made to the lake line commissioner—an office which, by the way, it is very hard to persuade anybody to accept. Those who have exceeded their share will either cut down their business or turn over some of it direct to those who are behind. Failure to do this lays the line liable to a fine of $3 per ton on freights not so diverted.

Maj. Ruffner is awaiting the appearance of the board of engineers to pass on the unfinished breakwater work. His report asking for a visit from the board was sent in some time ago, but nothing has been done yet. Work already under way in this vicinity and which will be resumed as soon as settled weather returns, is about two months' drilling, in the straightened channel through Horse-shoe reef at the head of the Niagara, the widening of the channel in the Niagara opposite Strawberry Island, the dredging of Tonawanda harbor and the deepening of the channel to Port Day, the harbor of Niagara Falls.

BAY CITY, MICH.

Special Correspondence to The Marine Record.

Captain James Davidson has ordered four of the American Ship Windlass Co's steam towing machines for the two car ferries and the two large steamers building by by him. He thinks the machines the very best ever introduced.

W. H. Whittemore has made improvements on his steam ferry, which makes it work to perfection. It is on exhibition at his machine shop, West Bay City. He will soon have it on the market. The principal fault with it before was a jerk in the valve which is now entirely overcome. It now works perfectly. Parties interested are asked to call and exaimine it.

Mac Kinnon Manufacturing Company are rebuilding the boiler of the steam barge Mame, including new fire boxes, main flues and smoke box. They are sending out a large number of their propeller wheels for use on the river and lakes. They are making the engine castings for the new steamers building at Wheeler's shipyards. The steamer Donaldson is at their hydraulic slings receiving a new stem. The tugs Louise, Parker, and Tempest will go into the slings in their turn.

The Marine Iron Company are very busy fitting out the fleet of the Saginaw Bay Towing Association, comprising seventeen tugs They are also compounding the engine of the tug Robert Weideman, and are repairing the machinery of the burned propellor Waldsberg. This firm have recently placed five of their hoisting engines on boats now building at F. W. Wheeler & Co.'s shipbuilding yard. They have just shipped one of their hoisting engines to Marine City to Blood & Hart for dock work; also one to the tug W. B. Caske, at Duluth, and will in a few days ship three more for use on Canadian boats.

EAST SAGINAW, MICH.

Special Correspondence to The Marine Record.

Capt. L. F. Hunt intends to either purchase or build a large steamer for the ore carrying business.

A one-half interest in the steamer Martin was sold to Parker and others of Detroit, consideration $3,500.

Capt. John Deigh of the Knickerbocker Ice Co., Toledo, O., has recently purchased the tug J. P. Logie and is fitting her out at this port.

The steamer C. H. Green is receiving new deck beams and deck, all new upper works, giving machinery a thorough overhauling and a new Scotch type boiler, the barge Corning is receiving extensive repairs.

Lewis Quinnen who recently purchased the steam yacht Fanny H. of Bay City is taking out her high pressure engine and replacing it with a steeple compound engine with independent air pump and condensor supplied by the Buffalo Steam Pump Co. through their agent, Capt. Harry Shaw.

Wickes Bros., boiler makers are building two 13 ft. 9x12, 170 lbs., steam pressure, Scotch type. Four 13 ft. 6x12, 170 lbs. steam pressure Scotch type. One marine fire box boiler 5½x11, all for F. W. Wheeler & Co., Bay City. Four 12 ft. 3 x 12, 160 lbs. steam pressure, Scotch type, for James Davidson; one 13 x 13, 125 lb. steam pressure, Scotch type, for the steamer C. H. Green at Saginaw.

COLLINGWOOD, ONT.

Special Correspondence to The Marine Record.

Mr. Hector McInnis is fitting out his tug James Playfair, at Meaford. The Doty Engine Works, of Toronto, are putting in a new air pump and condenser.

Capt. W. Hamilton has been appointed to the tug G. P. McIntosh. This tug has been away from these

waters for a number of years. This year the boat will be engaged in freighting fish for the Buffalo Fish Co.

A charter has been granted to the executors of the late A. M. Smith, of Toronto, to purchase the steamer Persia and other vessels, and carry on a general transportation business, under the name of the Toronto and Montreal Steamboat Co.

A number of fishermen who live near Vail's Point, on the east side of Owen Sound Bay, report that the ice has left the head of the bay and can not be seen from the Point with the assistance of glasses. In the eastern and south ends of the bay, these men report that there has not been a break. In the harbor the ice is as solid as at any time during the winter, being from sixteen inches to two feet in thickness.

DETROIT, MICH.

Special Correspondence to The Marine Record.

The schooner Ganges is receiving new top sides and recalking at Oades' shipyard.

The Riverside Iron Works is rebuilding the machinery of the steamer Chauncey Hurlbut.

The ferry lines and steamers State of Michigan and Arundel have gone into commission.

James Reid's wrecking tugs Manistique and Protector will come out with new boilers this season.

R. J. Cram & Co. have purchased the tug Crosby from the Kirby-Carpenter Co, of Menominee, for $4,500.

The new pier in Lake St. Clair at the foot of the boulevard, was damaged $1,000 worth by the running ice.

Capt. E. M. Peck has returned from his Mediterranean trip in fine condition physically, and filled with information about the Holy Land, which he "did" thoroughly this time.

Maj. Adams, the light house engineer, will on April 15, at 3 p. m., open bids at his office in this city for the furnishing of seven skeleton iron towers for the Hay Lake channel ranges.

The water in Clinton River has been very low this spring. The new excursion steamer Mineral City, which Dulac & Son have been building at Mt. Clemens, could not be launched until Tuesday.

The Mullen-Gatfield Coal Co, Amherstburg, have bought upwards of 400 feet of river front property, and are now building a fueling dock which will be very complete. A slip is to be formed for discharging purposes and at the same time machinery will be so placed that vessels can be fueled directly from the discharging craft and with only the one handling of the coal. The Sandwich docks of the above named company, will have eight pockets this season instead of the four formerly in use.

Longshoremen's union No. 10 met Monday night, when the scale of prices for handling lumber was agreed upon to be submitted to the employers. It is about 20 per cent lower than last year, and is based upon charters made from Lake Huron ports at $1.25 or under. When freights are higher a slight increase will be asked. The following is the scale adopted: White pine, 1 and 2 inch, 23c. per 1,000; Norway, 1 and 2 inch, 25c.; hemlock (dry), 1 and 2 inch, 25c.; hemlock (green) 1 and 2 inch, 28c.; strips, full load, 4 and 6 inch, 28c.; lath, on deck, 5c.; lath, in hold, 6c.; shingles, 5c.; basswood, 1 and 2 inch, 25c.; hardwood, 1 and 2 inch, 30c.; all over 2 inch, 33c.; timbers, 6 x 6, 30c.; all over 6 x 6, 35c.; 3 inch plank, 30c.; cedar posts (dry), per cord, 25c.; cedar posts (rafted and unpeeled), per cord, 30c.; cedar ties, each, 1¼c.; tamarack ties, each, 2c.

PORT HURON, MICH.

Special Correspondence to The Marine Record.

Everybody is working as fast as they can to get ready for business.

The steamer Mary is making daily trips between here and Alpena.

Boats in Sarnia Bay have begun to make a ripple to fit out. There is a large fleet there.

They are calking the deck of the Iosco, and the Whitaker is being calked all over and put in shape for a good season's work.

Work is progressing finely on the steamer S. C. Baldwin at the dry dock. She will be ready to come out of dock in about a week.

Mr. C. D. Thompson has purchased two more harbor tugs for this port. He will now have four of the finest tugs on the lakes.

The lumber tows will begin to fit out next week. Some of them have struck it rich—have large blocks of lumber to move at a fair living rate of freight.

Capt. Nelson Little will no doubt sail the schooner John Wesley. He is well known. He was master of the schooner Shupe, that the four men were lost off from a small boat in trying to rescue him and his crew last May.

Wolverine Dry Dock Co. have completed repairs on the steamer Australasia, comprising new starboard bow, breasthook irons, new frames, new rail, part new stanchions. They docked and put a new bow on the steamer S. C. Baldwin, new cabins, calking her all over, and new steel arches. Putting steel keelson in the steamer Pawnee and barges Young, Edwards and Orton. Just completed steel keelson on the steamer E. H. Jenks. During the winter the steamer Pawnee received a new stern and general overhaul, new rails on the Edwards and Young, and general or all rebuilt the barges Bahama and Yankee. Built steam yacht 30 feet over all, 7 feet beam, 3 feet depth, for sale.

ASHTABULA, OHIO.

Special Correspondence to The Marine Record.

The Fairport Fishing Co.'s tugs will be painted white this season.

The harbor tugs Sunol, William D., and John Gordon are fitting out. Outside parties have been trying to buy the Gordon, but she is not for sale.

Capt. Fred. Elliott will be master of the tug Marion. She will be engaged towing mud scows for the Lake Shore.

A large amount of timber and lumber has been placed on the P., Y. & A. main river dockage, which will be used for the proposed coal chutes. A number of carpenters are now employed and the work will be pushed forward rapidly to completion.

A mortgage on the fish tug Hope, owned by W. L. and Anna Baker, for $310, was foreclosed a few days ago by J. G. Laird & Son, and she will be sold at constable's sale on the 16th. She was built by Laird one year ago. There is a second mortgage of $400 on the tug.

DULUTH AND SUPERIOR.

Special Correspondence to The Marine Record.

The tug which Capt. Corrigan is building at Duluth will be named in honor of Capt. Dan Christie.

David Sang, of this port has the contract to furnish the broken stone for Marquette breakwater.

Major C. B. Sears has just submitted to Secretary Lamont two projects for improving Allouez Bay at the east end. One provides for the dredging of a channel 16 feet deep and 200 feet wide to extend over a mile beyond the northwestern docks. There would have to be removed 911,000 cubic yards at a cost of $118,430. The second and larger plan is to make the channel 20 feet deep and 400 feet wide for the same distance, with a large square anchorage basin, 1,500 by 1,800 feet, running from the middle of the entry to the mouth of the Nemadji River. The cost of dredging the second channel exclusive of the basin, would be about $198,380, there being 1,526,000 cubic feet of dirt to be removed.

The new unloading apparatus of the Lehigh Valley Coal Co., is a perfect success. The storage capacity of the two "circles" is over 100,000 tons. These circles are 200 feet in circumference. The three new towers work remarkably well, as does the conveyors for lifting the anthracite coal into the circles. Mr. Skell of Chicago, the western manager, will come to Superior in a few days to organize the office force and get things in working order.

Duluth and Superior are suffering from the red tape process. The people of those two towns realize that they will lose a good deal of business during the first year after the opening of the new American Soo lock, as the most they can claim for their harbors is eighteen feet of water, while the depth at which boats can load to go through the lock will be twenty feet. Some think that this temporary disadvantage may result in sending a large amount of freight to Washburn and other immediate points, where the draft need not be limited.

The passenger steamer Manitoba of the Canadian Pacific line, to run this season between Detroit and Duluth, will stop at Windsor to clear. The Manitoba was built at Owen Sound and is 60 feet longer than the other two steel boats, Alberta and Athabasca. The machinery in the Manitoba was taken from the Algoma, wrecked at the lower end of Isle Royale in 1894, when 45 lives were lost.

SANDUSKY, O.

Special Correspondence to The Marine Record.

The new Sandusky & Islands steamer Arrow, which is now receiving her finishing touches at Detroit, will arrive about May 1, when she will go into commission. Marine and business men here have started a movement to buy a handsome set of colors for her.

Dredge No. 16, owned by Carkin, Stickney & Co., lying at the Big Four docks, was libeled Monday on a bill of $5,176.96. alleged to be due A. F. Bartlett & Co. Deputy United States Marshal Donovan put C. Siegling in charge.

The steamer A. Werhle has gone to Cleveland for a general overhauling in dry-dock.

Much talk has been indulged in by local yachtsmen of late upon the subject of anchorage, and a strong inclination exists to secure such a place at the East End, outside of the railroad track, by means of cribbing or piles and booms, and it is more than probable that a meeting to discuss the project will be called at an early date. A few hundred dollars invested in such a harbor would greatly increase the number of pleasure boats, and thus add much to the pleasure of home people and summer visitors.

WEST BAY CITY.

Special Correspondence to The Marine Record.

At James Davidson's ship-yard there is now on the stocks five boats and they are getting out the material for two large car ferries for the Wisconsin & Michigan R. R. Co., to run between Peshtigo and Chicago. A large schooner on the stocks will be launched already for sea in two weeks. She measures 257 feet over all, 41 beam, and 21 feet from top of keelsons; very fine model, etc., and will carry 100,000 bushels of wheat from Chicago on 10 feet draft of water. She is built on builder's account.

Two steamers, duplicates: 330 feet over all, 43 feet beam, 26 feet molded depth; triple expansion engines, 20, 32, 54 x 42, built by the Frontier Iron Works, the boilers 12 ft. 3 x 12; by Wicks, Saginaw. They will be fitted the Howden system of forced draft, by the Detroit D. D. Co. Will be ready for sailing in June, and will carry 110,000 bushels of wheat from Chicago.

Two light draft barges, 145 feet over all, 34 feet beam, 8 feet deep, built for light draft purposes; will carry 1,000 tons in 7 feet water; will also carry 700,000 feet lumber, will be useful for lightering and for wrecking and for wrecking purposes. They are ready for launching, and will be run by builder until sold.

Two car ferries, 316 ft., 44 ft., 12 ft. The cars will come in on deck, bulwarks will be 8 feet above the deck. A new departure from any car ferries introduced yet. They will have steam towing machines with automatic attachments to relieve the strains on the tow line in heavy weather. They will have 1200 feet of steel cable, 4 inches in circumference. The towing machine is built by the American Ship Windlass Co. They will also have steam windlass and capstans, and all the latest improved appliances for economy aud rapid handling. They will carry a train of 26 cars each, and will be operated between Peshtigo and Chicago, and if necessary will go to Port Huron and connect with other roads; also to Frankfort and Mackinaw to connect with other railroads, giving the Waldo Avery a thorough rebuild at her dry dock shipyards. She will be entirely remodelled and improved, by having bow and stern improved, and will be better than when new.

Working at main shipyard about 700 men and 150 at the dry dock.

THE ROBERTS SAFETY WATER TUBE BOILER.

Among the most successful builders of tubulous boilers is the Roberts Safety Water Tube Boiler Co., 39 and 41 Cortlandt street, New York. This firm, besides having built and fitted about 800 of these well and favorably known steam generators, find their large works crowded with orders, and it is the intention of the company to further increase the capacity of their plant at an early date.

Water tube boilers are coming to the front and all must recognize the fact, that, at least, for medium-sized tonnage The Roberts type is walking away above par, although it should also be candidly admitted that other water tube boilers are in the market and closely following the trend of maritime opinion in the battle for economical steam raisers.

WATER TUBE VERSUS CYLINDRICAL BOILERS.

We have heard a great deal recently about the comparative value of boilers, chiefly however for special tonnage. The British admiralty was severely raked over the coals by a member of the House of Commons a few weeks ago for adopting the water tube boiler in place of the Scotch-type Marine boiler and now John D. Ellis, chairman of the John Brown & Co., Sheffield is out with a letter in the *London Times* and *Fairplay* in which he denies that the cylindrical form of boiler has come to the end of its tether.

Furthermore, he goes on to say that the Yarrow, Thornycroft, and kindred boilers may be all that is claimed for them for torpedo boats and similar vessels, but for large war, passenger, and cargo ships the makers of the Belleville and similar boilers are not likely to find the cylindrical boiler dead, as they apparently wish every one to believe.

Mr. Allan has spoken of the safety of natural draught and considers "forced" draught "unnatural" draught. Certain well-known troubles have, no doubt, been experienced in the application of forced draught to cylindrical Scotch and locomotive boilers with large nests of small plain tubes closely packed, but it does not follow that with large diameter tubes, ample water spaces, ready escape of steam, and strong mechanical suction draught, which in its action upon the boilers is the same as natural draught, the same difficulties will occur. As a matter of fact there is already nearly four years' experience that with this suction draught it is perfectly safe and convenient to obtain from cylindrical boilers two to three times the amount of the work obtained with natural draught, and from the absence of troubles at these rates of combustion it is clear they may be still further increased. The "serve" tube having twice the internal heat-absorbing surface of the plain tube of any given diameter has, moreover, enabled—even for the highest rates of combustion—the use of large diameter (3½ in.) tubes with large water and steam spaces. The economy arising from the use of the serve tubes with retarder is increased by heating the air with the heat of the waste gases, and the result is that these cylindrical boilers, even at three times the ordinary combustion of natural draught, give an evaporation per pound of fuel equal to current practice with natural draught and plain tubes, which shows a considerable economy over that of the ascertained results of the Belleville boiler.

Even at only twice the combustion of natural draught with ordinary funnel height the cylindrical boilers occupy less floor space than the Belleville boilers for a given I. H. P., and when we come to the weight question the great difference in the coal consumption per I. H. P., moreover, is to the advantage of the cylindrical boilers in all long-voyage vessels, surprising as this may be to some of your readers accustomed to hearing one side only. Mr. Howden wished to make a trial between the Belleville boiler and the cylindrical boiler with his system. Comparative evidence exists already close at hand establishing the great economy of the cylindrical boiler even under less favorable conditions than with his or the still more economical suction draught system referred to above. The London, Brighton, and South Coast Railway have two new steamers running between Newhaven and Dieppe. The Seaford, built by Messrs. Denny, has cylindrical boilers, *ordinary serve tubes*, plain stay tubes, and closed stokehold forced draught, which is the least economical of mechanical draughts, because it does not utilize the waste heat of the gases after they leave the boiler. The sister ship, La Tamise, was built in France and fitted with Belleville boilers. They both develop the same I. H. P. and have the same speed, but the Seaford averages 27½ tons of coal per trip, and the Tamise 37½ tons. The differenee in consumption of fuel in these two steamers is 36 per cent in a run of 3¼ hours. Let the owners of long-voyage steamers or of Atlantic racers calculate for themselves what this would mean to them.

The system of suction draught with cylindrical boilers referred to is working well in Australian and Atlantic steamers—in some at 200lb. working pressure with quadruple engines. The Belleville boiler works at 250lb. pressure, because it is considered more economical to do so than at a lower pressure, and by means of a reducing valve the steam is supplied to the engines also at 200lb. The susceptibility to quick considerable variations in pressure because of the small steam storage is thus counteracted in the Belleville boiler, but the cylindrical boiler with large steam space has no need for this.

Much is made of the facility of repairs, as if these were expected to form an important feature. If, however, the tubes and furnaces of a cylindrical boiler should require replacing, their is no difficulty whatever in doing so, and even if the Belleville boilers for any given indicated horse-power were to last as long as a cylindrical boiler—an assumption which has yet to be demonstrated—I venture to say that the advantage resulting during the life of the boilers from the much smaller weight of coal used and carried will far more than compensate for the extra cost in taking cylindrical boilers out of, and putting new ones into, the ships.

Not even the feature that steam can be raised "in an emergency" in half an hour can be claimed as the special property of the Belleville boiler. The same has been done with perfectly cold cylindrical boilers fitted with this system of draught, without evil consequences, in practically the same time.

DOESN'T BELIEVE IN TOWING.

L. H. McCormick, of Menominee, is reported in the Green Bay *Gazette* of the 3rd inst. as saying: The contract for the Wisconsin & Michigan railway car ferries was let to the James Davidson Co. of West Bay City when I was there the other day. I don't believe their scheme of car ferriage will succeed. It would be cheaper to have the power on the ferry. Besides the plan of towing involves dangers which cannot be avoided. I don't believe that cars can be secured to the barge

ferries so as to make them safe in a heavy sea. Of course I may be mistaken, but I believe the Peshtigo car ferry scheme will in time be modified or abandoned.

TACOMA COMMERCE.

Harbormaster Clift's report of the ocean commerce at the port of Tacoma for the month of March, 1895, is as follows:

IMPORTS.

Two cargoes from China and Japan valued	$500,000.00

EXPORTS.

554,317 bushels of wheat, foreign	$214,000.00
20,496 barrels of flour	49,593.00
32,564 tons of coal	102,206 00
7,917,263 feet of lumber	73,146.00
General merchandise, foreign	65,243.00
Total	$504,188.00
Total for February	$441,529.00
Inward registered tonnage	67,044 tons.
Outward " "	58,425 "
Inward cargo "	5,465 "
Outward " "	60,729 "
Number of deep sea arrivals	45

CAPT. A. FORD HURSLEY.

All people connected with the shipping interests, are shocked at the tragic death of Capt. A. Ford Hursley, who shot himself at the Park hotel, Sault Ste. Marie, Saturday night. He was one of the best known masters on the lakes. While standing in the hotel office talking with some friends, he excused himself, went to the toilet room, and immediately committed the rash act. Death was instantaneous. Mr. Hursley was a prominent Knight Templar and knew no enemies. He was a skillful pilot, and when Hay Lake Channel was opened piloted the big North-West through on her first trip. It is said that he had been offered command of the North-West this season, but declined. The captain was well-to-do at one time, but when he met with political and financial reverses, became despondent and recently told a friend that his money, his prospects and all were gone and that he was tired of life. A widow and two bright children survive him.

THE TROUT WHEEL.

The following communication just received by H. G. Trout & Co., King Iron Works Foundry, Buffalo, should be very pleasing to the manufacturers of the well known Trout propeller wheels.

PORT HURON, APRIL 5, '95.

H. G. TROUT, Buffalo:—

Enclosed find check in payment for propeller wheel The wheel is the fastest and the best backing wheel ever made for the steamer Mary.

Yours truly,

S. H. BURNHAM.

A CANINE LIFE-SAVER.

In the March number of *Our Dumb Animals*, Boston, Mass., the following account of how a dog was instrumental in saving the lives of eight seamen, is given. We are also indebted to the above journal for the accompanying cut:

"Some years ago a vessel was driven on the beach of Lydd, in Kent, England. The sea was rolling furiously. Eight poor fellows were crying for help; but a boat could not be got off, through the storm, to their assistance, and they were in constant peril, for any moment the ship was in danger of sinking. At length a gentleman came along the beach accompanied by his Newfoundland dog. He directed the animal's attention to the vessel, and put a short stick in his mouth. The intelligent and courageous dog at once understood his meaning, sprang into the sea and fought his way through the angry waves towards the vessel. He could not, however, get close enough to deliver that with which he was charged; but the crew understood what was meant, and they made fast a rope to another piece of wood and threw it towards him. The noble animal at once dropped his own piece of wood, and immediately seized that which had been thrown to him; and then, with a degree of strength and determination scarcely creditable—for he was again and again lost under the waves—he dragged it through the surge, and delivered it to his master. A line of communication was thus formed with the vessel, and every man on board was rescued.

CREW SPACE.

The Bureau of Navigation has issued the following notice to the collectors of customs and others which has for its object the better accomodation of the crew of vessels. The act took affect April 1, 1895.

"Every place appropriated to the crew of the vessel shall have a space of not less than seventy-two cubic feet and not less than twelve superficial feet, measured on the deck or floor of that place, for each seaman or apprentice lodged therein. Such place shall be securely constructed, properly lighted, drained and ventilated, properly protected from weather and sea, and as far as practicable properly shut off and protected from the effluvium of cargo and bilge water; and failure to comply with this provision shall subject the owner to a penalty of five-hundred dollars. Every place so occupied shall be kept free from goods or stores of any kind not being the personal property of the crew in use during the voyage; and if any such place is not so kept free the master shall forfeit and pay to each seaman or apprentice lodged in that place the sum of 50 cents a day for each day during which any goods or stores as aforesaid are kept or stored in the place after complaint has been made to him by any two or more of the seaman so lodged. No deduction from tonnage as aforesaid shall be made unless there is permanantly cut in a beam and over the doorway of every such place the number of men it is allowed to accomodate with these words. "Certified to accomodate * * * seamen."

The third section of the act provides:

"Sec. 3. That the provisions of this act requiring a crew space of seventy-two cubic feet per man shall apply only to vessels the construction of which shall be begun after June 30, 1895.

LIFE-SAVING SERVICE NEWS.

The official register of the United States Life Saving service as connected up to date, is furnished to THE MARINE RECORD through the courtesy of the superintendent Sumner I. Kimball. The following changes are noted. J. K. Upton is now assistant general superintendent, vice, Horace L. Piper; new assistant inspectors are Lieut. Walter S. Howland, vice, Lieut. Charles H. McLellan, in the fourth district; Lieut. John F. Wild, vice lieutenant, John W. Harrison in the fifth district; Lieut. Staley M. Landray, vice lieutenant, John C. Moore (with headquarters at Detroit) in the ninth district.

Capt. Oscar B. Hall has succeeded Wm. Marshall as keeper of the Crumple Island Station on the coast of Maine; Charles M. Noyes is appointed to Plum Island station in Massachusetts, vice, James W. Elliott and James H. Charles at East Orleans, Mass., vice Marcas M. Pierce; changes on the New Jersey coast are, Benjamin Van Bount at Asbury Park, vice Lambert Edwards; Abner R. Herbert at Mautoloking, vice Lewis Truex; Richard S. Ludham at Stoneharbor (new arrangement.) In Virginia, Joseph M. Feddeman succeeds Sealamore Bloxom at Pope's Island and John R. Andrews takes the place of C. A. Crumb at Cobb's Island. A new station has been established at Portsmouth with Ferdinand G. Terrell. John H. Fromberger succeeds Dennis O'Neil at Fort Lauerdale, Fla. Murdock A. McLennon has been appointed keeper at Middle Island, Lake Huron, to succeed Donald McKenzie, who is given charge of the new station at Duluth. A new station has been established at Old Chicago, with Capt. Frank Fountain as keeper. Carl Anderson is now keeper at Sturgeon Bay Canal, taking the place of Talespard Boutin; who succeeds Jason F. Pralton at Milwaukee. The only change in the Pacific coast is at Ilwaco Beach, in Pacific county, Wash., when Wm. S. Lawrence takes the place of Richard Turk. All of the changes are not recent, but all have occurred since July.

The following crew has been mustered by Capt. Chas. Motley of the Cleveland life-saving station; Arnold King, William C. Allen, D. Sutherland, David Allen, James Richards, Frank Hamilton, James McCullen and John Hammes. The last named is the only new member, and comes from Middle Island, Lake Huron. The crew will probably go into commission April 20.

Capt. Morton and the following life-saving crew were duly examined and commisioned at Holland, Mich.: John Skinner, John Smith, Frank E. Johnson, George C. Robinson, Austin L. Fairbanks, Albert Tanner, Nick J. Whelan.

The Sturgeon Point life-saving station will be manned this year as follows: Capt. J. E. Henderson, A. Silverthorn, No. 1; L. Cordy, Jr., No. 2; William Hugil, No. 3; William Hilliard, No. 4; Sam Newel, No. 5; Patrick Obrien, No. 6; George A. Cuyler, No. 7; William Finch, No. 8. The crew will go into service April 16.

The life-saving crew at St. Joseph Harbor went into active commission April 1, with W. L. Stevens captain, and Surfmen Richard Stines, Albert Carter, Frank Fowler, Charles Burkhard, Charles Roberts, Fred Alden and Will Moyer.

The life-saving men of Marquette and vicinity have bought the fast cruising yawl Jane, built last year from the designs of Lieut. J. Moore, of the revenue service.

Capt. Johnson, superintendent of the Erie life-saving crew, has re-appointed his last year's crew.

Government officials are now engaged in perfecting the plans and specifications for the proposed life-saving station to be located at Bailey's Harbor. The site will be selected as soon as the steamers go into commission so that the officers can visit the harbor without much loss of time.

The new keeper of the Duluth life-saving station, Donald McKenzie, left salt-water sailing to become one of the first men to engage in the life-saving service. This was nearly 20 years ago, and he has been continuously at the business since. Up to this year he has been keeper of the Middle Island station, a very important point because of the dangerous nature of the locality. As such he has made himself well and favorably known because of his promptness, activity and bravery. His successor, M. A. McLennan, at one time a fisherman, has been in the service ten years. He is promoted because of his general ability and his thorough knowledge of the Middle Island locality.

The life-saving station at Kewaunee opened Monday noon. The crew, consisting of eight men, is in charge of Capt. N. Craite, with John Houle, Jr., James White, Ben. Kuhlman, Henry Lafond, George Flaherty, Peter Dionne and Joseph LeClaire as surfman. Mr. Houle was transferred from the station at Two Rivers. He was also a member of the crew at the canal some years ago.

Following is the roster of the life-saving crew at Sturgeon Bay Canal: Carl Anderson, captain; Wilson Warner, Richard Greeney, Lester Cheeseman, Alphonse Gattie, Ed. Bavry, Anton Gleasner, Melvin Mackey. The station was opened for the season at 12 o'clock Monday.

When the schooner William Shupe was in danger of going to pieces in the terrible storm on Lake Huron last May, her crew were saved from destruction by the Sand Beach Life-Saving crew. Each of these men has received a medal from the government for bravery. Dan Lynn, of Port Huron, the only one saved of the volunteer crew that made the attempt at rescue, though clearly entitled to honorable recognition, has been notified by the government that he is left out.

QUARTERLY SHIPBUILDING RETURNS.

Sailing and steam vessels built in the United States and officially numbered, as shown by the records of the Bureau of Navigation, Treasury Department, during the quarter ended March 31, 1895:

	STEEL.		IRON.		WOOD.			
	Steam.		Steam.		Steam.		Sail.	
	No.	Gross.	No.	Gross.	No.	Gross.	No.	Gross.
Atlantic & Gulf	1	179.17	5	2 810 09	10	3,128 97	48	2 693 16
Pacific	..	.....	..	.....	4	925.30	12	378.18
Great Lakes	1	3.400.08	..	.....	1	10.21	2	13.40
Western Rivers	1	5 94	..	.....	9	524 00		.....
Total	3	3 585.19	5	2 810.09	24	4 588 48	62	3,084 74

Previous Quarter.	No.	Gross Tons.		No.	Gross.
Total Steam	46	13,740 29	Total Steam	32	10,983 76
Total Sail	77	8,700 78	Total Sail	62	3 084.74
Grand Total	123	22,441 07	Grand Total	94	14,068.50

THE RECENT SALARY CHANGES.

Supervising Inspector Galway, of Detroit, is of the opinion that while the new apportionment of salaries of the sub-inspectors is looked upon with disfavor by those whose salaries have been reduced, it is a just one, after all. According to the new rules the salaries of all local inspectors at ports where 300 or more vessels are inspected in a year on the average shall be $2,250; where 200 to 300 vessels are inspected, $2,000; 150 to 200, $1,800; 100 to 150, $1,500; 100 and below, $1,200. At Duluth, where 174 boats were inspected last year, the salaries were increased from $1,200 to $1,800; at Detroit, with 162 vessles on the books, lowered from $2,000 to $1,800; at Grand Haven, with 174 boats reported, $900 to $1,800; Port Huron, with 188, $2,000 to $1,800; at Marquette, with 101, raised from $800 to $1800; Buffalo with 384, raised from $2,000 to $2,250; at Cleveland, with 299, raised from $1,500 to $2,200. It would seem that salaries under the old order of things were fixed according to the personal pull with the congress that made them.

A POWERFUL HYDRAULIC DREDGE.

Capt. Wm. W. Bates, ex-commissioner of navigation, and for several years manager of Inland Lloyds, is now in Baltimore, Md., superintending the construction of a hydraulic dredge, which, when completed, will, it is said, astonish the navigators of the Mississippi River by the way it will have of straightening and deepening channels. The new dredge is to be the most powerful in the world and Capt. Bates who is a veteran shipbuilder will devote his time for the next few months to her construction.

CANADIAN CANALS.

The Dominion Government has fixed the canal tolls on all Canadian waterways for 1895. Tolls on grain and other food products passing through the Welland Canal will be 10 cents per ton, and payment of this amount will entitle to free passage of the St. Lawrence Canals. This will make the tolls on grain the same to Montreal as to Oswego and Ogdensburg. The order in council makes the new Sault Ste. Marie Canal free to vessels of both countries. The Welland Canal will be opened for navigation on April 20.

CORRESPONDENCE.

☞We do not hold ourselves responsible in any way for the views or opinions expressed by our correspondents. It is our desire that all sides of any question affecting the interests or welfare of the lake marine should be fairly represented in THE MARINE RECORD.

INSPECTION DUTIES ONLY.

WEST BAY CITY, MICH., April 8, 1895.

To the Editor of The Marine Record:

In your issue of April 4th, last, under the head of "Cleveland Correspondence," there appeared the following item, viz.: "Mr. Wm. J. Wood, who was for four years draughtsman with the Globe Iron Works Co., and lately with the Cleveland Ship Building Co., has just been engaged by the Wisconsin & Michigan Railway Co., the 4 A. road, to superintend the design and construction of their new large car ferries which are to be built by Capt. Jas. Davidson, of Bay City."

In order to put this matter in its proper light, we desire, through the columns of THE RECORD, to correct the wrong information the above item may convey, and also deny that Mr. Wm. J. Wood, or, in fact any other person, outside of ourselves, "will superintend the design and construction of the large new car ferries, which are to be built by Capt. James Davidson, etc."

We prepared our own design, plans and specifications for these car ferries, in competition with other ship builders, and our design, plans and specifications were accepted by the Wisconsin & Michigan Railway Co., and a contract for building the car ferries according to our design, plans and specifications, was thereupon entered into about a month ago.

The model for the car ferries has already been prepared, and they have been "laid down" in the moulding loft and the work on them has been commenced. The only "superintending of design and construction, etc." that has been done, was performed by Capt. Davidson. As a matter of fact we do not know Mr. Wood, nor have we been advised that he has assumed new relations with the Wisconsin & Michigan Railway Co., but, if he has, or, in fact, any other person who will have duties with reference to the car ferries, while they are in course of construction, these duties will simply be of the nature of, not of a "superintendent of design and construction, etc.," but on the contrary, of an overseer, or, in other words, an inspector, whose work shall consist in seeing that the material furnished for the construction of the car ferries is furnished according to agreement, and that the car ferries are built according to design, plans and specifications already prepared by us and accepted by the Wisconsin & Michigan Railway Co., and embodied in the contract between us.

Yours very truly,

JAMES DAVIDSON.

HEIGHT OF WAVES.

Dr. G. Schott, as the result of studying the form and height of waves of the sea, claims that under a moderate breeze their velocity was 24.6 feet per second, or 16.8 miles an hour, which is about the speed of a moderate sailing vessel. As the wind rises, the size and speed of the waves increase. In a strong breeze their length rises to 260 feet, and their speed reaches 360 or 364 feet per second. Waves, the period of which is nine seconds, the length 400 or 425 feet, and the speed twenty-eight nautical miles per hour, are produced only in storms. During the southeast storm in the southern Atlantic Dr. Schott measured waves 690 feet long; and this was not a maximum; for in latitude 28° south and longitude 39° east he observed waves of fifteen seconds' period which were 1,150 feet long, with a velocity of 78-7 feet per second or 46⅛ nautical miles an hour. Dr. Schott does not think that the maximum height of the waves is very great. Some observers have estimated it at 30 or 40 feet in the wind of the force represented by 11 on the Beaufort scale (the highest number on which is 12); and Dr Schott's maximum is just 32 feet. He believes that in great tempests waves of more than 60 feet are rare, and that even those of 50 feet are exceptional. In the ordinary trade winds the height is five or six feet. The ratio of height to length is about 1:33 in a moderate wind, 1:18 in a strong wind, and 1:17 in a storm; from which it follows that the inclination of the waves is respectively about 6°, 10°, and 11°. The ratio of the height of the waves to the force of the wind varies greatly.

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CLEVELAND, O., APRIL 11, 1895.

A CONTRACT placed this week at a lake shipyard for a steel steamer with a keel length of 400 feet and 48 feet beam, is a fair indication of the rapid strides being made in the methods of transportation as well as ship construction.

WHILE there is considerable ice reported at the various lake ports, it is now thought that two weeks more of the present weather will open St. Mary's River to navigation. It is noticeable that the ice on Lake Michigan, especially at the south end of the lake is giving way earlier than at some points on the lower lakes.

THE steamer St. Paul was successfully launched at Cramps' shipyard, Philadelphia, on Wednesday, in the presence of thousands of spectators. It will be remembered that the large vessel refused to leave the ways at the first attempt to launch her on March 25, owing, it was said, to the tallow having froze, but more likely it was because the ways had probably settled while the big ship was in course of construction.

COMMERCE REPORTS BY VESSEL MASTERS.

The system of reports to be made by vessels, which was referred to in the last issue of THE RECORD, and which is to be enforced this season at Duluth and Superior, has been in force since April, 1891, at the Lake Ontario harbors, which are in charge of Capt. Dan. C. Kingman, Corps of Engineers, U. S. A., at Oswego, N. Y.

The detailed and accurate knowledge thus obtained is most valuable and has been much needed. The information which had formerly been collected by the Treasury Department, had not been of a character to give the necessary corrections showing the changes from year to year, in the number, size and draft of vessels using a given harbor. The statistics compiled in this way are most valuable to all concerned, but had not formerly been available, because part of it was not required, and because coastwise vessels and those seeking shelter were not included in the Treasury Department reports, though evidently they were equally important with those which actually loaded or discharged their cargoes.

Since April, 1891, every vessel using any Lake Ontario harbor, which is in charge of Capt. Dan. C. Kingman, Corps of Engineers, has filled out a blank, giving full information as to her name, nationality, character (steam, sail or tow), cargo (in and out), tonnage and draft. If only coming for shelter, the fact is mentioned and the cargo is not reported. By the courtesy and co-operation of the collector of customs at Oswego, the boarding officers at the various ports in the Oswego district have given the blanks to the vessel captains and have collected them after they were filled out, and have then mailed them to Capt. Kingman, in whose office they are compiled for his annual report. Vessels regularly trading to the various harbors are furnished with blanks and with stamped and addressed envelopes, and they thus send their reports directly to Capt. Kingman.

By those means, the system has been in full and complete operation at the harbors of Charlotte, Pultneyville, Big Sodus, Fair Haven, Oswego and Sackett's for four years without a cent of additional expense to the government. except a few dollars for printing the blanks. For the first time in the history of the harbor works, reliable and accurate information is available as to their commerce.

A vessel master can readily fill out the blank, and these reports are treated as confidential, so far as the amount of business done by particular lines and vessels is concerned. Nothing is given out or published except the aggregate for each harbor, so that it appears vessel men are perfectly willing to give the full reports required.

THE ATLANTIC TRADE.

During the year 1894, not a bushel of grain was carried across the Atlantic in a steam or sailing vessel under the American flag. Of the millions of bushels of cereals grown in the United States, but 600 bushels of peas were carried last year in American bottoms and even that consignment was carried in an English built steamer, which has been granted an American register—the liner New York. That particular shipment of 600 bushels comprised the small surplus which could not be loaded on an English craft.

This condition of the American merchant marine, so far as the export grain and cereal trade is concerned, is only too forcibly illustrated in the statistics which have just been compiled by Capt. Wm. E. Ferguson, of the New York Produce Exchange. The commissioners of navigation, the produce, corn and American exchanges and the various consuls general, are furnished annually with these statistics by Capt. Ferguson. Aside from the gradual disappearance of the American flag from the seas, the tables compiled by Mr. Ferguson show the disappearance of sailing vessels of any nationality from the grain carrying trade. Steam has now entirely superseded sail. In 1881, sailing vessels carried 19,020,583 bushels of grain and cereals to Europe, but in 1894 not a bushel of grain was exported in a sailing craft. In 1891 the unequal struggle with steamships was evidenced when, out of 1,238 vessels which carried cargoes of grain from New York, only 15 were sailing vessels.

There were shipped from New York during 1894, 33,384,952 bushels of American grain and cereals, the bulk of this large export trade was carried in British vessels, which made 496 trips across the Atlantic, carrying 21,007,461 bushels. The remainder of the export trade was divided between Belgium, German, Dutch. Danish, French, Italian, Portugese, Russian and Spanish vessels.

Not a bushel of the trade fell to the lot of a Norwegian craft. Russia was represented by the steamer Ceres, which made a single trip, carrying 42,970 bushels of wheat. Portugese vessels made 22 trips, carrying 1,530,196 bushels; Dutch vessels made 83 trips, carrying 3,272,307 bushels, the next greatest quantity to the English. German ships made 95 trips and carried 2,678,221 bushels of grain to the emperor's domains. Vessels displaying the British flag carried more than two-thirds of the entire exportation, or 10,000,000 more bushels than all the other vessels of the world combined. In 1892, of the 1,238 cargoes sent abroad only 25 were carried under the American flag. There were then four American steamers left in the grain carrying trade. They were the passenger steamers of the old American line, which sailed from Philadelphia under the control of the Pennsylvania railroad. Not even these craft now enjoy the privilege of carrying American grain cargoes, for they have been driven out of the business.

The number of arrivals of vessels from foreign countries at the port ot New York for the month of March, shows 27 American steamers to 135 British and 29 German, Dutch 10, Norwegian 10. The total figures for sail and steam of all nationalities were 382, and it can easily be seen that the British arrivals more than equaled the number of all other arrivals combined. The coastwise trade makes a good showing for domestic tonnage, as for March there was a total of 810 coastwise arrivals.

SHIPBUILDING IN GREAT BRITAIN.

In the last issue of consular reports, John M. Savage U. S. Consul at Dundee, Scotland, furnishes the following particulars of tonnage built in Great Britain during the year 1894:

Contrary to all the expectations formed twelve months ago regarding the prospects of the industry, the production has been much higher than it was in 1893. When the year began, the outlook seemed the reverse of encouraging. Most of the yards were in a depleted condition, while the orders for new work were few and far between. In the spring, however, a revival took place, and although this did not continue for any great length of time, it sufficed to give that impetus to the trade which has left such a decided mark on the output. The shipbuilding operations of 1893 were about the lowest on record. The total output of the United Kingdom, including war ships built in the government and private establishments, amounted to 917,000 tons. This was a decrease from 1892 of nearly 400,000 tons, and from 1891 of nearly 700,000 tons. As a matter of fact, the shipbuilding facilities of the country were utilized to the extent of barely two-thirds in 1893. During the present year, the output has been 1,124,000 tons, or an increase over 1893 of 107,000 tons. Last year, 205 sailing ships, with a tonnage of 132,826 were built, and this year the number has fallen to 176, representing a tonnage of 93,249, while the number of steamers has risen from 504 to 611, and the tonnage from 784,250 to 1,030,759. In view of the fact that every "ton" of steamer is reckoned equivalent to three sailing-ship "tons," it will be seen that the carrying capacity has been largely augmented in excess of the increase of tonnage.

The following table gives in detail the tonnage built in the different centers:

Shipbuilding centers.	1894. Sailing vessels. No.	Sailing vessels. Tons.	Steamers. No.	Steamers. Tons.	Total tonnage.	Total tonnage in 1893.
Clyde	75	72.130	182	368,755	340,885	280,160
Forth	2	522	27	14.840	15 362	13 492
Tay	14	4.384	16	7.006	11.390	6,811
Dee	2	490	10	6.439	6,929	2,427
Dockyards	.....	.....	8	26,700	26,700	31,640
Tyne	9	3 197	110	204.071	207,268	147,449
Wear	.....	.....	70	166,544	166 544	124,161
Tees	18	1,644	41	100,618	102.262	95.115
Hartlepool	.....	.....	29	79.193	79 193	66,641
Humber	14	1.919	53	17 633	19.552	9,139
Mersey	6	3,506	10	4,950	8.456	9,071
Thames	.....	800	.....	6.403	7.203	8,235
Barrow	.....	.....	10	20.656	20.656	19,552
English minor ports	36	4.657	22	9.050	13.707	15,927
Belfast	.....	.....	23	97,901	97,901	87,256
Total	176	93,249	611	1 030.759	1,124,008	917,076

VESSEL TAXATION LAWS.

Milwaukee vesselmen are somewhat exercised over the bill just introduced in the legislature providing for rates of vessel taxation greatly in excess of the Austin bill, recently passed and signed by the governor. It is generally declared that should it become a law and supersede the Austin bill, all the boats of the big lines now registering from that city will soon hail from other ports.

At all events a meeting of vesselmen will be held the latter part of the week to decide what action to take.

The new bill provides for taxation as follows: A1 steel vessels, $25 a ton; metal vessels below A1, $20 a ton; wooden vessels, A1, $20 a ton; below that rating, from $12 to $8 according to age; steel tugs, $100 a ton; below A1, $80 a ton; below that $60 to $40, according to age; steel tow barges, A1, $20 a ton; below that rating, $16; wood, A1, $16; below that $12 to $8; sailing vessels of steel, A1, $20 a ton; below that rating $15; wood, A1, $15; below that rating from $12 to $6,

The Austin law provides for the assessment of boats at $8 a net ton on boats less than five years old and $6 a net ton on boats between five and ten years old and $5 a net ton on boats more than ten years old. Under this bill, its opponents claimed, a valuable yacht would often have to be assessed at less than an old lumber barge, and the most valuable boats could not be assessed at anything like their real value.

TRANSFERS VESSEL PROPERTY.

The following transfers of vessel property have been recorded at the Milwaukee customs office: Schooner Willie Loutit, William Farquhar of Chicago, and Alexander Smith of Grand Haven, to Thomas Lawson of Milwaukee, one-half, $1; tug Gunderson Brothers, Nels, Louis and Frederick Gunderson, to Gustav Gunderson of Sheboygan, three-fourths, $2,100; scow Nellie Church, E. Dow and W. L. Williams of Manitowoc to George J. Gerard of Depere, the whole, $300; tug Julia C. Hammel, E. Hammel, Jr., of Manitowoc to H. and A. Luebke, of Two Rivers, the whole $3,500.

The Kirby Carpenter Co., of Menominee has sold the tug Crosby to P. J. Cram of Detroit for $4,500.

APPOINTMENT OF OFFICERS FOR 1895.

	MASTER.	ENGINEER.
LACKAWANNA TRANSPORTATION CO., BUFFALO.		
Str. Lackawanna	F. Weinheimer	W. B. Lewis
" Scranton	Jas. H. Greene	C. H Van Every
" Russia	Jno. B Greene	Wm. Brown
" Grand Traverse	Wm. Kelly	Ed. Carter
" Arthur Orr	C. Z. Montague	Thompson Pike
" J. W. Moore	Richard Neville	J. Walder
" Florida	H. Murphy	G. M. Wise
" Wyoming	H. H. Ferguson	Jno. Bohnert
" Cuba	Robert Young	Maybury
REPUBLIC STEAMSHIP LINE. BUFFALO.		
" America	Jas. Gibson	J. H. Haig
" Brazil	Jos. Hulligan	A. Edgar
" Thos Maytham	A. B. Drake	Robert Close
W. H. LOUTIT, GRAND HAVEN.		
Str. Pentland	T. McCambridge	
GEO. W. BROWN, WINDSOR, ONT.		
Str. Cambria	Neal Campbell	John Doran
" Carmona	James Foot	F. White
GEO. HALL COAL CO , Ogdensburg.		
Str. Hecla	D. Hourigan	D. M. Doyle
Tug W. L Proctor	W. D. Russell	A E. Cline
" Thos Wilson	Jos Richard	R. G. Jardin
" Conlew	P. J. McGrath	Geo. M. Cline
Schr. W. H. Sherman	C. W. Howard	
" Bolivia	Jos. Gooden	
" Mary Lyon	S. La Flam	
" Jennie Mathews	F. D. Lum	
" Beals	Geo Cote	
Barge Black Diamond	Alex Robideau	
" Argosy	John Ganthier	
" Mohawk	L. Venier	
" Onondago	U. Brunett, Jr.	
J. D. PETERSON, HURON, O.		
Str. Jas C. Lockwood	J. D. Peterson	Josh B. Wood
ASHLEY & DUSTIN, DETROIT, MICH.		
Str. Frank E. Kirby	A. J. Fox	E. Perry
" Wyandott	J. Desana	J. Halder
JOHN CORRIGAN, CLEVELAND, O.		
Str. Aurora	R. Donaldson	Chris. Castle
Schr. Geo. W. Adams	Andrew McKay	.....
" J. I. Case	F. D. Perew	.....
R. R. RHODES, CLEVELAND, O.		
Str. Neshoto	W.H.Humphrey	Thos. Malloy
" R. R. Rhodes	P. Dowdell	R D. Mayberry
" Siberia	W. W. Morse	F. Mooney
LAKE SUPERIOR IRON CO., CLEVELAND, O.		
Str. LaSalle	H. W. Stone	Warren Tilton
" Joliet	P. L. Millen	F. B. Smith
" Griffin	O. W. Green	Geo. W. Mason
" Wawatam	Edward Mooney	Ed. Dempsey
" Choctaw	John Ward	George Lynn
" Andaste	William Ames	Frank Steadly
J. C. GILCHRIST, CLEVELALD, O.		
Str. City of Genoa	J. L. Weeks	James Mitchell
" City of Naples	George Bell	John Fritz
" A. P. Wright	C. T. Gunderson	J. Birney
" John Craig	W. H. Moody,	Henry Jesson
" R. E. Schuck	Olof Olson	Theo.Scudder
" J. C. Gilchrist	J. C. Byers	J. A. Dines
" J. B. Lyon	H. Gunderson	A. J. Smith
" Cumberland	J. C. Thompson	J. Mitchell
" Columbia	B. Moshier	C. N. Allbee
" Hiawatha	Wm. Blattner	Henry Stone
" Oregon	.....	E. D. Butler
" Waverly	.....	Chas. Martin
Schr. H. D. Alverson	Fred Goodale	
" B. F. Bruce	Chas. Olsen	
" W.S.Crosthwaite,	J. P. Minsky	
" M. S. Bacon	D. C. Sullivan	
" Thos. P.Sheldon	R. Jansen	
" S. H. Foster	.....	
" Verona	Thos. Tucker	
" S. L. Watson	.....	
WESTERN TRANSIT CO., BUFFALO.		
Str. Arabia	Robert Murray	Patrick Welch
" Badger State	.....	.....
" Boston	Dugald Buie	Thos. McCabe
" Buffalo	Patrick Shea	Wm. McNulty
" Chicago	F. J. McCabe	F. A. Miller
" Commodore	R. D. Gardner	J. W. Brooks
" Empire State	.....	.....
" Harlem	Frank Williams	M. J. Laney
" Hudson	A. J. McDonald	Moses Tronton
" Idaho	.....	.....
" McCormick	M. A. Huntley	James Richards
" Milwaukee	M. Folan	J. W. Rainey
" Mohawk	Valentine Jones	Henry Hess
" Syracuse	Donald Gillies	J. W. Marks
" Vanderbilt	Neil McCormick	F. W. Hale
" Montana	S. R. Jones	Wm. Tibby

CONTRACTS FOR NEW TONNAGE.

F. W. Wheeler & Co., of West Bay City, has contracted to build for Dr. George W. Roby and his son-in-law, L. C. Waldo, of Detroit, a steel steamer 400 x 48 x 28 feet, to be a duplicate in size and machinery power of the steamers Victory and Zenith City, now building at South Chicago. The steamer will hardly be completed to make a trip this year.

Capt. E. W. Heath, of Benton Harbor, Mich., has the keel laid for an excursion steamer to be 122 feet long by 23 feet beam and 10 feet depth. She is building for T. Arnold, and will be launched June 1. The passenger steamer R. C. Reid, which has been remodeled and lengthened one-third, will be ready to launch this month, and is pronounced a very fine model.

In addition to the table printed in our columns last week the Iowa Iron Works, Dubuque, Ia., have under construction the steamer Ericsson of 120 tons displacement for the U. S. Navy at a cost of $113,000 to be completed June 1., also the revenue cutter Wm. Windom to be completed July 1, at a cost of $98,500.

NOTICE TO MARINERS.

IMPROVEMENT IN CHARACTER OF KINGSVILLE FRONT LIGHT.

From and after the opening of navigation this spring, the fixed red light maintained on the outer end of the east breakwater pier at Kingsville, on the north shore of Lake Erie, in the Province of Ontario, will be shown from a 7th order dioptric lantern, hoisted on a post. In other respects the light will be unaltered.

WM. SMITH,
Deputy Minister of Marine and Fisheries.

LAKE HURON LIGHT-VESSEL.

Notice is given that on the opening of navigation, 1895, light-vessel No. 61. stationed in the S. end of Lake Huron, off the entrance to the St. Clair River, will be moored at a point about 1,000 feet to the northward and eastward of the moorings occupied last season, in order to conform to the changes in the channel caused by dredging. The exact location of the vessel will be given after she has been moored in her new position.

ABSTRACT OF BIDS FOR BUILDING STEAM LAUNCH TYBEE.

BIDDERS.	PRICE.	TIME OF COMPLETION
1. Jno. H. Dialogue & Son, Camden, N. J	$9,800	July 20, '95
2. The Geo. Lawley & Son, Corp., Boston, Mass.....	16,765	Sept. 1, '95
3. Atlantic Works, Boston, Mass...	14,985	4½ mo. from date contr.
4. The Pusey & Jones Co., Wilmington, Del.....	9,979	July 1, '95
5. C. Reeder & Sons, Baltimore, Md.	12,985	Sept. 1, '95
6. James Clark Co., Baltimore, Md.	14,500	Oct. 1, '95
7. Craig Ship Bldg. Co., Toledo, O.	12,444	July 20, '95
8. R. M. Spedden Co., Baltimore, Md	12,973	Oct. 1, '95

The bid of John H. Dialogue & Son has been accepted for building the revenue steam launch Tybee.

LOCAL FORECAST OFFICIAL ENDORSED.

At a regular meeting of the Cleveland shipmasters held at their hall on Water Street, Friday, April 12, the following preamble and resolutions were unanimously adopted:

WHEREAS:—We appreciate the fact that one of the most necessary adjuncts to our arduous and dangerous profession is the Weather Bureau offices established as they are in the various cities on these Great Lakes and

WHEREAS:—This great benefit to navigation is seen by all of us, more and more every day, and is brought about so successfully. by the selection of competent, skillful and obliging men in charge of these offices.

WHEREAS:—While feeling grateful to the department in giving us this valuable assistance especially in our case in the Cleveland Office. We can not let the season pass without a mention of the important fact that we recognize in W. B. Stockman a gentleman in everything that the word implies, always eager to impart information to all classes, that are directly or indirectly benefited.

RESOLVED:—That we tender individually and as a body our thanks to W. B. Stockman, for the valuable information, he so gladly gives through this most useful branch of the service, also when not on duty, as an officer giving us his time at our rooms, and explaining to us in his interesting and intelligently clear way, the law of storms and cyclonic movements. This important information is of untold value to us in our particular calling, and has created an interest and anxiety to hear more of this subject from the source, so well able to give it.

ALSO RESOLVED:—That we tender to Professor Harrington, Chief of the Weather Bureau, Department of Agriculture, our sincere thanks for keeping with us, so able and efficient an officer and hope that he may see fit to let him continue at this station for many years to come.

AND BE IT FURTHER RESOLVED:—That a copy of these resolutions be forwarded to Professor Mark W. Harrington, Chief of Weather Bureau, Department of Agriculture at Washington, D. C. and to the local press.

JOHN LOWE,
JOHN HALL,
JAMES STONE, } Committee.

MARITIME LAW.

U. S. District Court, Northern District of New York.

THE JOHN CRAIG—THE ALPHA—THE GRACE DANFORTH—IN ADMIRALTY—COLLISION. The libel alleges that the libelants' barge Wenona, was, on the 13th of September, 1893, injured by reason of a collision with the steam propeller, John Craig, caused by the negligence of the Craig and the tug Alpha which had the Craig in tow.

The Craig and Alpha appeared and answered charging that the collision was due to the negligence of the Wenona and the tug Grace Danforth, which had her in tow.

Subsequently, upon the petition of the owner of the Alpha, the tug Grace Danforth was made a party and filed an answer alleging that the injury was occasioned without fault on the part of the Wenona or the Danforth and was due solely to the unskillful seamanship of the Craig and the Alpha.

GEORGE CLINTON, for libelants.
GEORGE S. POTTER, for the Craig and the Alpha.
HARVEY D. GOULDER, for the Danforth.
COXE, J.

On the morning of September 13, 1893, the barge Wenona was being towed by the tug Grace Danforth down the Blackwell Canal, at Buffalo, bound on a voyage up the lakes. The Wenona is 193 ft. long and 30 ft. beam. On the day in question she was partly loaded and drew about 12 ft. of water. She is a sailing vessel and was wholly under the control of the tug. The Danforth is a large and powerful harbor tug, about 75 ft. long and 17 feet beam. The line between the tug and the barge was about 25 ft. in the clear.

While the Danforth and the Wenona were proceeding down the canal, bound out, the Craig, in tow of the Alpha, was coming up the Buffalo River, bound in, it being her intention to turn into and proceed up the Blackwell Canal.

The Craig is a large and powerful propeller 288 ft. in length and 42 ft. beam. She was loaded and drew about 16 ft. of water. The Alpha is about the same size and capacity as the Danforth. The Alpha's line to the Craig was about the same length as the Danforth's line to the Wenona.

The Watson elevator is located at the junction of the Buffalo River and the Blackwell Canal. There is at this point a shoal of soft mud extending out several feet from the elevator dock.

As the tugs approached the junction they gave the proper signals, the final agreement being that they should pass starboard to starboard. In attempting to turn into the canal the Craig run upon the shoal and came to a standstill with her bow about ten feet from the elevator dock.

The Danforth after the signals were exchanged kept well over to the southerly side of the canal, passed the stern of the Craig in safety and kept on diagonally across the river. When near the propeller Armour, which was lying at the D. L. & W. coal docks on the opposite side of the river, the Danforth starboarded and headed almost directly west or out into Lake Erie. The effect of this manoeuvre was to head the Wenona in the same direction and as she passed the stern of the Craig a collision occurred, the starboard quarter of the Craig striking the Winona about 45 feet from her stern, breaking 30 of her stanchions and inflicting a long wound on her starboard side. The Buffalo River is about 300 feet wide and the Blackwell Canal about 200 feet wide. At the point of junction the channel is a little over 500 feet in width; that is to say, a line drawn from the northerly shore of the river to the southerly shore of the canal through the Watson dock would be a little over 500 feet.

The day was bright and clear, there was little wind, and nothing in the elements which interfered with the free navigation of the harbor.

The libellants and the Danforth maintained that the Craig and the Alpha are solely responsible for the accident. They insist that the Craig was negligent because she backed off the shoal and into the Wenona, whereas she should have stopped her engines and remained where she was until the Wenona had passed, and that the Alpha contributed by assisting in pulling the Craig off the shoal.

The Craig and the Alpha deny that they were backing at the time of the collision and insist that while the Craig was lying motionless with her bow imbedded in the mud the Danforth approached at a dangerous rate of speed, for such a locality, and, by making a sudden turn before the Wenona had passed the point of danger, swung her stern violently against the Craig, and that the Wenona helped to produce this result by keeping too

near the center of the canal and because she did not secure the service of a second tug.

In short, each of the four vessels is charged with some fault which produced or contributed to produce the collision.

The accusations against the Alpha and Wenona may be dismissed in a few words. Neither was guilty of a fault which contributed in any appreciable degree to the accident. The Wenona was entirely under the control of the Danforth, and her steering seems to have been without just ground of complaint. It is not necessary to determine whether it would have been prudent for her to have taken another tug for the reason that the theory that a second tug would have prevented the collision is based merely upon conjecture and unsubstantial presumption. The same is true of the Alpha. If the Court should find that all the charges made against her are true it by no means follows that she contributed to the collision. The principal force which pulled the Craig off the shoal was her own wheel. Assuming that the Alpha supplemented this force, the line of her pull was not directly aft, but on an angle; so that if she exerted any force at all the tendency was to pull the propeller's bow to starboard and her stern directly away from the Wenona. If there were anything in the situation to prevent the application of this elementary rule of mechanics it should have been proved. There is nothing in the testimony which proves that the Craig was moved backward an inch by the Alpha. This leaves the controversy one between the Craig and the Danforth.

. Counsel for these vessels have submitted ingenious arguments to prove that they were not at fault, but should the Court accept both as correct it must be found that no collision occurred, for if the counsel for the Craig be correct in his conclusions she was stationary at the time of the accident, and if the counsel for the Danforth be correct the Wenona's stern had passed some distance beyond the Craig when the turn down the river was made.

But inquiry must begin with the unquestioned fact of the collision. This was not the result of inevitable accident. It took place in broad daylight when there was nothing in wind or water to make navigation dangerous. It was the result of bad seamanship. Either the Craig or the Danforth or both were to blame.

As to the Craig. Before the Danforth passed the stern of the Craig the latter's bow was embedded in the mud at Watson's point, and her stern was 300 feet down the river pointing about W. by N.

The Craig is longer than the Blackwell Canal is wide, and it is probable that after running aground her stern was considerably less than 100 feet from the signal station dock on the southerly shore of the river. If the Craig backed while lying in this situation it was negligence. It was clearly her duty to su pend her efforts to get off the shoal during the few minutes necessary to enable the Danforth and the Wenona to pass. To obstruct the channel still more was careless seamanship. I do not understand that this proposition, generally speaking, is disputed, but it is argued on behalf of the Craig that she did not back or attempt to back until after the Wenoha had passed, and, even if she did back her position was such that she must have widened the channel instead of obstructing it. This argument is supported by nice calculations based upon the assumed positions of the vessels at the time of, and just previous to, the accident. When, however, it is remembered that an error of a few feet in the major premise may destroy the most plausible reasoning, and that it is simply impossible to locate the vessels with perfect accuracy, the theory that the Craig could not have backed into the Wenona must give way before the testimony of witnesses who swear that they saw her back into the Wenona.

The preponderance of the testimony is to the effect that from the moment the bow of the Craig entered the mud it was her purpose to back out as quickly as possible, and that she never relaxed this purpose for a moment. The mud was soft, there was no great difficulty in pulling her out, and the presumption is that she began to back almost immediately after she stopped and began to feel the force of the reverse action of her powerful engines.

This view is supported by a large number of interested witnesses, and, I think, by all the disinterested witnesses sworn in the cause.

With the fact of the Craig's backing so clearly established, it follows almost as a necessary inference that she must be held liable. The burden is strongly upon her to show that this dangerous manoeuvre did not contribute to produce the accident. She has not done so; she has advanced ingenious theories, but, as before stated, they must yield to the oaths of witnesses who were standing on solid ground and who swear that they saw the Craig back into the Wenona. The testimony of those stationed on moving vessels is, as to such matters, illusory, deceptive and unreliable.

McNally v. Meyer, Ben., 239.

But was the Craig solely to blame?

I cannot resist the conclusion that the Danforth might have prevented the accident, or at least, lessened the force of the blow.

Perhaps as succinct an account of the accident as any is that given by the boy who stood on the dock of the Life Saving Station. He says that there was about 75 feet of water between the stern of the Craig, after she had grounded, and the dock. That this was a narrow passage through which to tow a barge 193 feet long and 30 feet wide on a rounding course cannot be denied. The situation required the greatest care and caution on both sides. The witness continues as follows: "I saw the Danforth come down towing the Wenona, and the Danforth took a sheer right across the creek into the Armour, and when she got there she pulled over. The Craig backed right up. I saw her move sternways and strike the Wenona." I am convinced, after reading the testimony, that the Danforth, in view of the position of the Craig, and of the fact that the Craig was "backing strong," should have reduced her speed and should have proceeded with utmost care. Instead of doing this she "kept going right along" until she had almost reached the Armour on the north side of the river, and then, without looking back to ascertain the position of the tow, her master wheeled her around sharply to port, opened his engine wide and proceeded straight down the river. The tendency of pulling the bow of the barge thus suddenly to port was to swing her stern to starboard and directly against the backing Craig. This is, in my opinion, precisely what took place.

Not only is this view corroborated by a large number of witnesses, including some of those called on behalf of the Danforth, but also by the character of the Wenona's wound. It is perfectly clear that the Craig could not have acquired much sternway. She was large, heavily loaded and had only a few moments before she came to a dead halt with her bow in the mud. She could not have backed far and must have been proceeding at a snail's pace when the vessels came together. She could not have inflicted a wound 40 feet in length on the Wenana's quarter unless her backing were supplemented by the swinging of the Wenona. In other words, it required the joint carelessness of the Craig and the Danforth to produce such a wound.

It is possible that the difficulty in formulating a theory of the collision, which can be followed to a perfectly satisfactory conclusion, is found in the fact that counsel have not attempted to point out any faults except those occurring at and just previous to the moment of the collision when the vessel may almost be said to be *in extremis* My own impression is that the negligence which brought about the disaster occurred sometime before the Craig grounded.

It is thought that a cogent argument can be constructed to show that it was a grave fault for a heavy loaded propeller to attempt to enter a narrrow canal when she knew that she would probably run aground at the entrance and that another steamer was coming down the canal so that a meeting at the turn was almost inevitable. When the Craig heard the Danforth's signals she could have slowed down, and, if necessary, passed the entrance of the canal and up the Buffalo River. But for the grounding of the Craig no accident would have happened—this is beyond dispute. And yet the Craig knew that grounding was almost cer ain to follow her attempt to enter. The evidence is undisputed that large boats "generally fetch up there." To thrust such an immense vessel into a shoal at the mouth of a narrow channel already occupied by a tug and tow which are rapidly approaching the mouth seems hardly compatible with prudent seamanship.

The Michael Davitt, 28 Fed. Rep, 886; The Troy, Id. 861; The Iron Chief, 53 Fed. Rep. 507; The Osceola, 50 Fed. Rep. 326.

To a less extent these observations apply to the Danforth. Knowing what was likely to happen if the Craig attempted to enter the Blackwell Canal, knowing that a vessel a third longer than the canal is wide would probably run aground at the point and might block the entire entrance, would it not have been wiser to have stopped or to have slowed down still further, so as to approach the point of danger with as little momentum as possible? This view of the subject, so in accord with prudence, safety and common sense, at least from a layman's standpoint, finds support in the record. The master of the Craig testifies: "When we got in by the lighthouse, I am not certain whether it was the Alpha or the Danforth that blew a long whistle first; it was blown and answered.

Q. "What did that indicate?"

A. "It was turning the corner and was supposed to stop. Two boats meeting along there in that shape one will blow a long blast and the other will answer her and is supposed to check down and stop."

If either had checked down and stopped no collision would have occurred.

I make these suggestions with considerable hesitancy for the reason that they have not been alluded to, although the cause has been presented by counsel of unquestioned ability and expertness in the law maritime. Possibly, however, the failure to do so may be explained on the supposition that neither counsel cared to advance an argument which might prove to be a two-edged sword.

As the result will be substantially the same whichever view is taken I prefer not to base the decision upon the considerations just alluded to, as it is entirely possible that these views may be ill founded, and, in any event, before they are accepted by the Court counsel should have an opportunity to discuss them.

The libellant is entitled to a decree against the Craig and the Danforth. A moiety of the entire damages, interest and costs should be charged against each.

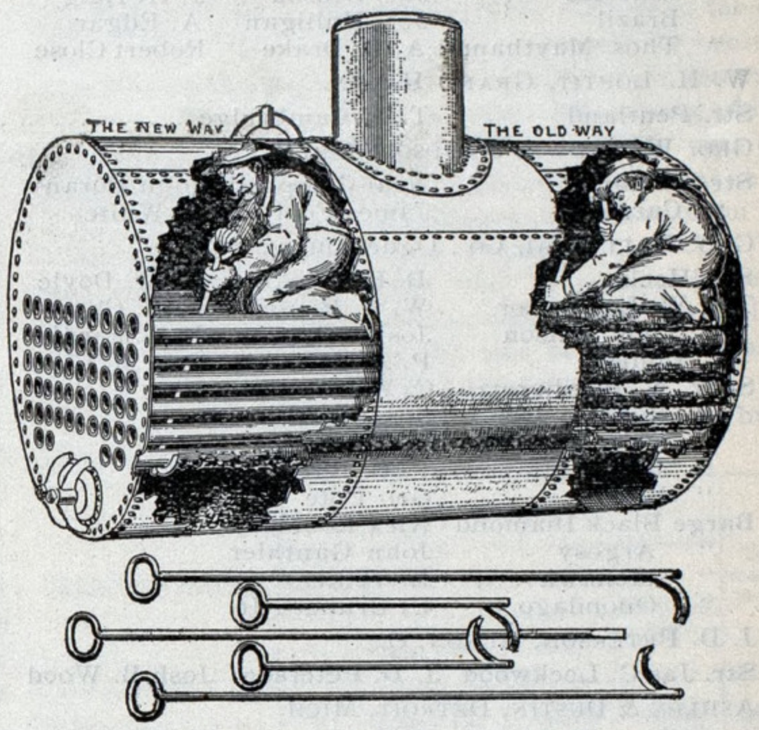
The Alabama, 92 U. S., 695; The Nicholson, 28 Fed. Rep. 889.

As to the Alpha the libel is dismissed without costs.

FOR THE BOILER ROOM.

Bauer's external flue scrapers, which are shown in the accompanying cut, will commend themselves to every practical engineer. Scale and sediment in the boiler often necessitates the removal of flues and a big bill of expenses, which can be avoided by the use of these scrapers referred to. This is claimed by the maker to be the only device which will effectually remove scale and sediment from the outside of boiler flues without injury to flues or boiler. These tools were first introduced in 1891 and have rapidly grown in favor, being used and indorsed by a large number of manufacturing concerns all over the country.

As shown in cut, a set consists of five tools, but recently a sixth has been added, the latter being designed



BAUER'S EXTERNAL FLUE CLEANERS.

for scraping the inner shell of boiler. Each scraper is made of tool steel, hardened, concaved and ground, producing two sharp edges to work both ways. They are finely finished, nickel plated, and a set will last eight to ten years. The tools should be used every six weeks to two months, depending upon the character of water used, and are warranted to save fuel, save repairs, save flues, and save time in getting up steam. Every set is guaranteed and will be sent on trial upon receipt of outside diameter of flues. For a limited time a patent inside flue cleaner will be furnished with each set, making a complete outfit of boiler room tools at small cost. For further information and prices address E. Rayfield, 373 Dearborn street, Chicago.

NOTES.

IF the recent decision of Judge Gibbons at Chicago, in the case of the Sturgeon Bay Canal Co. *vs.* Leatham & Smith for tug tolls, is sustained by the Supreme Court of Illinois, it looks as if the canal company would soon be the defendant in suits brought by owners of tugs which have been paying tolls for years past. This would cost the company, it is said, about $10,000.

GEN. Poe wishes to correct a statement sent out by a Washington correspondent who gave a hasty glance at his report and then announced that surveyors had discovered an unknown rock so many thousand feet above the lower entrance to the St. Clair Canal. This rock, over which there is just 16 feet of water at the ordinary stage, lies at a point 9,000 feet above the Fort Gratiot light and 300 feet to the westward of the range buoys which run through the center of the deep channel cut. This cut is 2,400 feet wide, but only the eastern half is as yet in use, so that unless blown over to the other side by a heavy gale there is no danger that any vessel will strike it. The General says it will be removed before the boats get into commission. He says it was seen through the ice by some of his surveyors.

IT is the intention of the Secretary of the Navy to shortly give consideration to the question of names for three gunboats building at Newport News. Among cities which are applicants for the honor of having vessels called after them are Norfolk, Va.; Lexington, Ky.; Nashville, Tenn.; Chattanooga, Tenn.; Niagara, N. Y.; Mobile, Ala.; and Gloucester, Mass.; Cleveland, St. Louis, Omaha and Pittsburg also made application to have a vessel named after each of them, but have been informed that under the law their names can be given to vessels on only the cruiser type. Rhode Island, Kentucky and Pennsylvania are working strenously to secure the second battle ship, which was authorized by the recent naval appropriation act. The first is to be named the Kearsarge.

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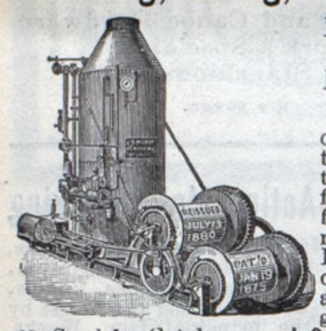

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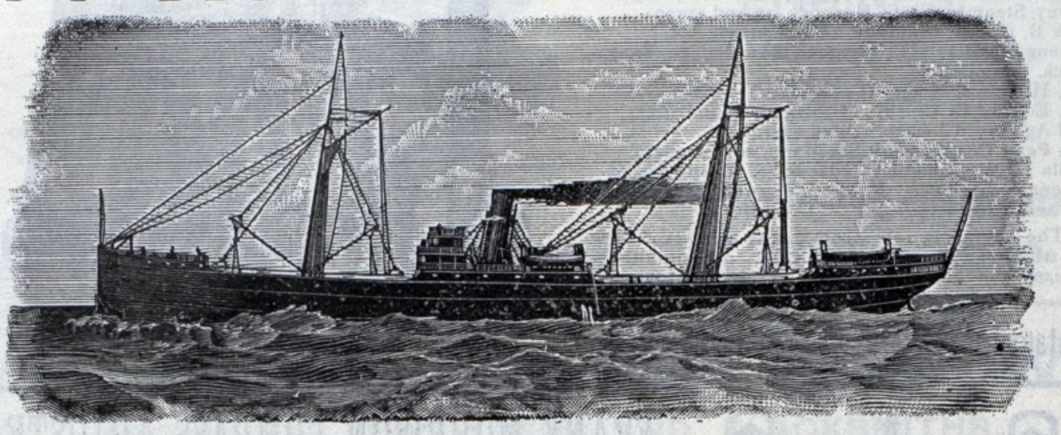

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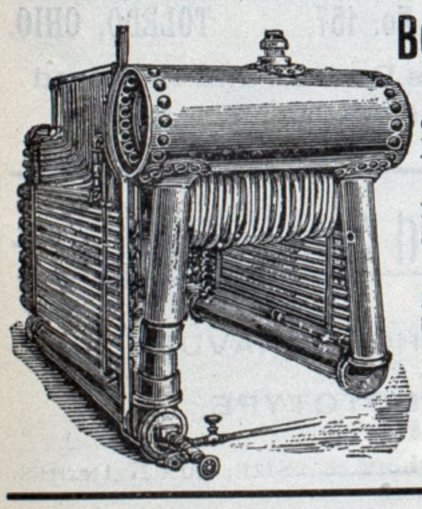

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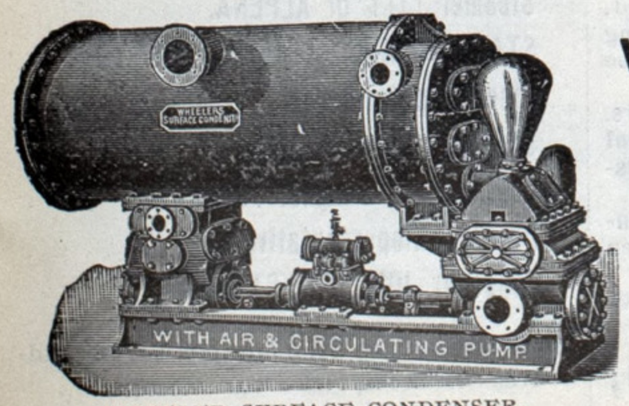

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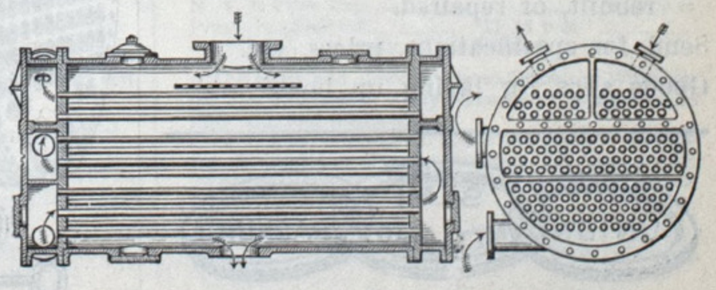

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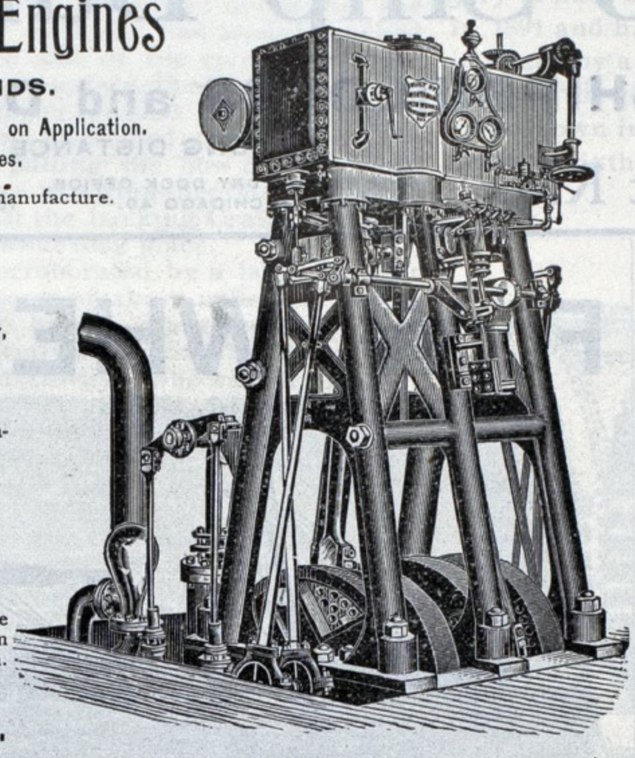

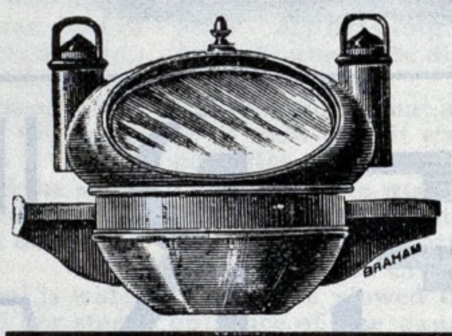

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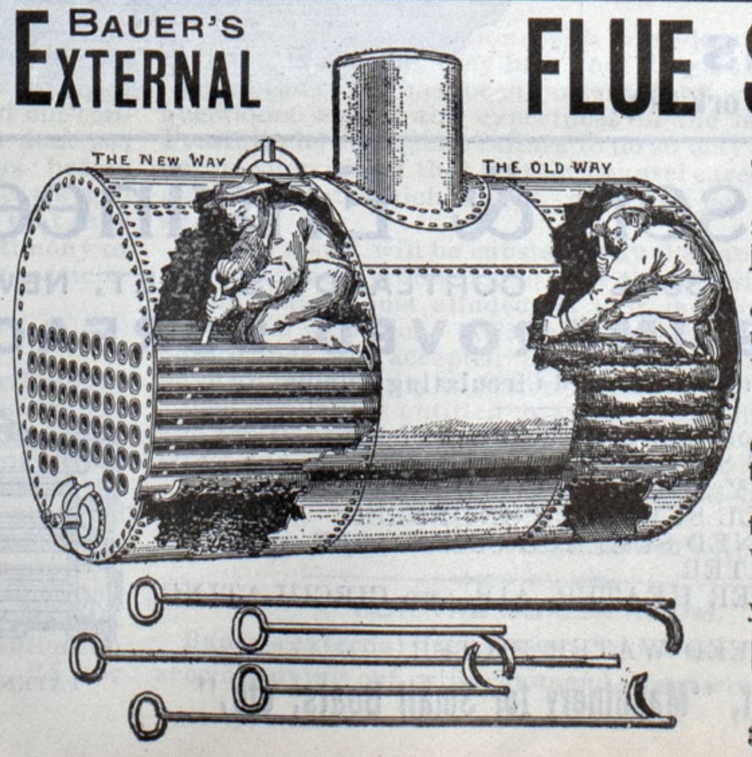

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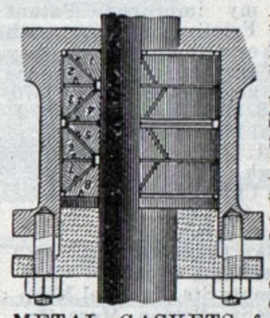

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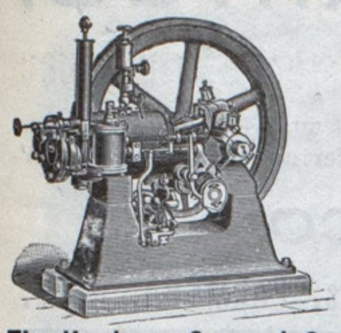

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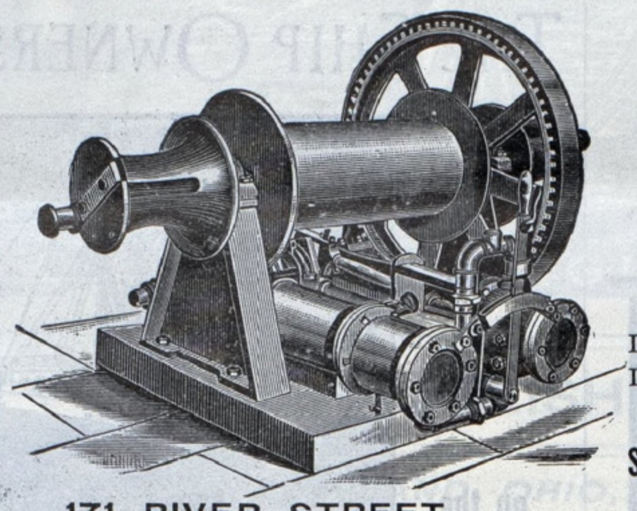

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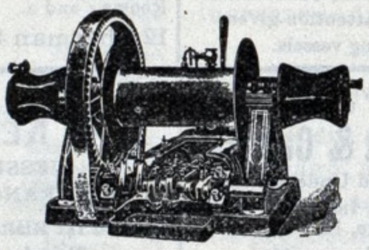

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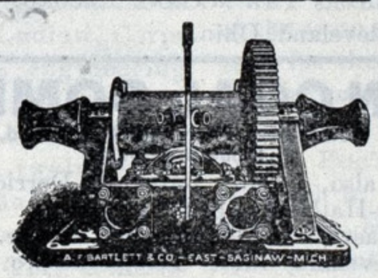

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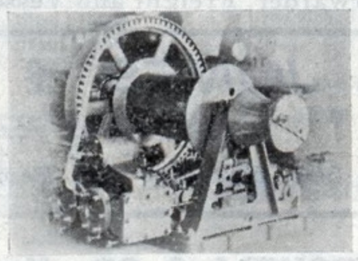

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OFFICE OF ENGINEER 9TH AND 11TH LIGHT-HOUSE DISTRICTS, Detroit, Mich., March 25, 1895. Sealed proposals will be received at this office until 3 o'clock p. m. of Monday, the 15th day of April, 1895, for furnishing seven skeleton iron towers for Hay Lake Channel, St. Mary's River, Michigan. Plans, specifications, forms of proposal, and other information may be obtained on application to the undersigned. The right is reserved to reject any or all bids, and to waive any defects.
M. B. ADAMS, Major, Corps of Engineers, U. S. A., Light-House Engineer.
13–14

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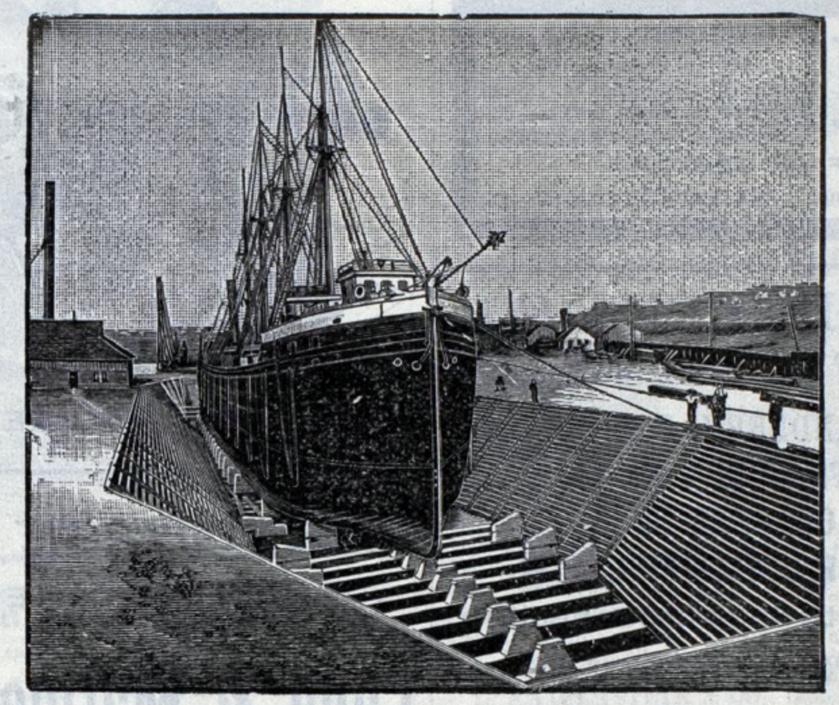

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